

CLAIMS

1. A translector comprising a suspended particle device (1).
- 5 2. A translector according to claim 1, wherein the suspended particle device (1) is configured to apply one or more electric fields to a particle suspension (2).
3. A translector according to claim 2, wherein the suspended
10 particle device (1) is configured to apply to the particle suspension (2) two electric fields with mutually orthogonal orientations.
4. A translector according to claim 2 or 3, wherein the suspended
15 particle device (1) is configured to apply an electric field to the particle suspension (2) intermittently.
5. A translector according to any one of claims 1 to 4, wherein the
suspended particle device (1) is configured to switch the particle suspension
(2) into one of:
20 a transmissive state; and
a reflective state.
6. A translector according to claim 5, wherein the suspended
particle device (1) is configured to tune transmittance and reflectance
25 properties of the particle suspension (2) to values intermediate to those associated with said transmissive and reflective states.
7. A translector according to any one of the preceding claims,
further configured to tune its transmittance and reflectance properties in
30 accordance with an output of a light sensor (14).
8. A transfective display (15) comprising:

a display device (16); and
a translector (1);
wherein said translector (1) is a suspended particle device.

5 9. A transfective display (15) according to claim 8, wherein the
suspended particle device (1) is configured to apply one or more electric fields
to a particle suspension (2).

10 10. A transfective display (15) according to claim 9, wherein the
suspended particle device (1) is configured to apply to the particle suspension
(2) two electric fields with mutually orthogonal orientations.

15 11. A transfective display (15) according to claim 9 or 10, wherein
the suspended particle device (1) is configured to apply an electric field to the
particle suspension (2) intermittently.

12. A transfective display (15) according to any one of claims 8 to
11, wherein the suspended particle device (1) is configured to switch the
particle suspension (2) into one of:

20 a transmissive state; and
a reflective state.

13. A transfective display (15) according to claim 12, wherein the
suspended particle device (1) is configured to tune transmittance and
25 reflectance properties of the particle suspension (2) to values intermediate to
those associated with said transmissive and reflective states.

14. A transfective display (15) according to any one of claims 8 to
13, wherein the display device (16) is a liquid crystal display device.

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15. A transfective display (15) according to any one of claims 8 to
13, wherein the display device (16) is one of:

an electrophoretic display;
an electrochromic display;
an electro-wetting display; and
a micromechanical display.

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16. A transfective display (15) according to any one of claims 8 to 15, further comprising a light source (17).

17. A transfective display (15) according to any one of claims 8 to 10 16, further comprising a quarter-wave plate (22).

18. A transfective display (15) according to claim 16, further comprising a quarter-wave plate (22) positioned between the suspended particle device (1) and light source (17).

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19. A transfective display (15) according to any one of the preceding claims, further comprising a light sensor (14).

20. A method of operating a translector (1), comprising tuning 20 transmittance and reflectance properties of the translector (1) by controlling alignments of particles within a particle suspension (2).

21. A method according to claim 20, further comprising:
detecting a level of ambient light (21) in the vicinity of the translector.
25 (1).

22. A method of displaying an image, comprising the steps of:
displaying an image on a display device (16); and
providing illumination for a display device (16);
30 wherein the step of providing said illumination comprises tuning transmittance and reflectance properties of a translector (1) by controlling alignments of particles within a particle suspension (2).

23. A method according to claim 22, wherein the step of providing illumination for the display device (16) further comprises operating a light source (17).

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24. A method according to claim 22 or 23, further comprising:
detecting a level of ambient light in the vicinity of the display device (16).

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25. A method according to any one of claims 20 to 24, wherein the translector (1) is tuned in accordance with an output signal of a light sensor (14).

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26. A method according to any one of claims 20 to 25, wherein the tuning of the translector (1) comprises applying one or more electric fields to the particle suspension (2).

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27. A method according to claim 26, wherein the tuning of the translector (1) comprises applying to the particle suspension (2) two electric fields with mutually orthogonal orientations.

28. A method according to claim 26 or 27, wherein the one or more electric fields are applied to the particle suspension (2) intermittently.

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29. A method according to any one of claims 20 to 28, wherein the step of tuning the translector (1) comprises switching the particle suspension (2) into one of;

a transmissive state; and
a reflective state.

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30. A method according to any one of claims 20 to 29, wherein the step of tuning the translector (1) comprises tuning its transmittance and

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reflectance properties to intermediate values within a range of achievable transmittances and reflectances respectively.